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EXAMINER

NOTE, JANIS L

ART UNIT PAPER NUMBER

1756

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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/737,579

Applicant(s)

ISHIKAWA ET AL.

Examiner

Janis L. Dote

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-43 and 45-69 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 8-10, 12, 14-18, 20-43, 45-49, 51, 54, 55 and 57-69 is/are rejected.
- 7) ☒ Claim(s) 4, 7, 11, 13, 19, 50, 52, 53, and 56 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

1. The examiner acknowledges the amendments to claims 27 and 57, and the addition of claims 68 and 69, filed on Feb. 18, 2004 (Amdt021804). Claims 1-43 and 45-69 are pending.
2. The examiner notes that newly added claims 68 and 69 require the toner structural limitation recited in withdrawn claims 1-26, 31, 33, 35, 36, 39, 41, 43, and 45-56, a toner comprising "an agglomerate of particles comprising at least primary polymer particles, and at least one layer of a particulate resin coated on a substantial surface portion of said agglomerate of particles." Thus, the withdrawn claims 1-26, 31, 33, 35, 36, 39, 41, 43, and 45-56 are generic to claims 68 and 69. Because the search for the toners recited in claims 68 and 69 would now be coextensive with the search for the toners in the withdrawn claims, there is no additional burden on the office to search all the pending claims.

Accordingly, in response to applicants' amendment filed in Amdt021804, the restriction requirement made in the office action mailed on Apr. 30, 2002, is hereby withdrawn.

Claims 1-26, 31, 33, 35, 36, 39, 41, 43, and 45-56, previously withdrawn from consideration as a result of a restriction requirement under 37 CFR 1.142, have been hereby

rejoined and fully examined for patentability under 37 CFR  
1.104.

3. The rejections of claims 57-63 and 65 under 35 U.S.C. 102(e)/103(a) over US 2002/0028402 A1 (Matsuoka), and of claims 63, 64, and 66 under 35 U.S.C. 103(a) over Matsuoka combined with the other cited prior art, set forth in the office action mailed on Nov. 18, 2003 (CTNF111803), paragraphs 9-12, have been withdrawn in response to the amendment to claim 57, adding the limitation that the binder resin is an addition-polymerization binder resin. As discussed in CTNF111803, paragraph 9, Matsuoka exemplifies a toner comprising a wax and a polyester resin binder. Although Matsuoka in paragraph 0031 discloses that the binder resin may be a styrene, an acrylic or a styrene/acryl resin, the reference does not disclose or suggest that a toner comprising such a binder resin and a wax would have the wax distribution property recited in instant claim 57.

The objection to claims 27 and 57 set forth in CTNF111803, paragraph 7, have been withdrawn in response to the amendments to claims 27 and 57 filed in Amdt021804.

4. The disclosure is objected to because of the following informalities:

The specification at page 42, lines 19-21, discloses that the portions of toner having particle sizes of 5  $\mu\text{m}$  or less and particle sizes of 15  $\mu\text{m}$  or less are "10% by weight or less" and "5% by weight or less" (emphasis added), respectively. However, instant claims 45 and 46 recite that the amounts are "10% by volume or less" and "5% by volume or less." The table at page 132 of the specification reports that the toners in the examples comprise toner particles having particle sizes of 5  $\mu\text{m}$  or less and particle sizes of 15  $\mu\text{m}$  or less in amounts based on volume.

Appropriate correction is required.

5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

(1) The entire recitations in claims 4, 5, and 7 lack antecedent basis in the specification. See page 44, lines 18-25, and page 50, line 23, to page 51, line 6, of the specification, which discloses two particulate resin layers, where the inner layer comprises particulate resin comprising a wax and an outer layer comprises particulate resin comprising no

wax. The recitation "two layers . . . of particulate resin" is broader than the disclosed two layers, because it includes two layers of particulate resin not comprising wax, or two layers of particulate resin comprising a wax.

(2) The entire recitations in claims 16 and 54 lack antecedent basis in the specification. See page 14, lines 20 ff, of the specification, which discloses primary polymeric particles obtained by seed emulsion polymerization of a monomer mixture using a particulate wax as a seed, wherein "[i]n order to effect seed polymerization, a monomer having a Bronsted acidic group . . . or a monomer having a Bronsted basic group . . . and a monomer having neither a Bronsted acidic group nor a Bronsted basic group . . . are successively added to cause polymerization in the emulsion containing particulate wax." The recitation in claims 16 and 54 are broader than the disclosed primary polymer particles because they include primary polymer particles that are not obtained by the seed emulsion polymerization disclosed in the specification, such as primary polymer particles obtained by a suspension polymerization method.

(3) The entire recitations in claims 17-19 lack antecedent basis in the specification.

(4) In claim 20, the recited range of 15% to 80% by weight lacks antecedent basis in the specification. See page 22, lines 11-16, of the specification, which discloses that the primary polymer particles comprise a THF insoluble in an amount of "15 w/w% or more" and "70% or less."

(5) The entire recitation in claim 21 lacks antecedent basis in the specification. See page 18, lines 13-18, of the specification, which discloses that the primary polymer particles obtained from particular monomers disclosed at page 16, line 7, to page 17, line 20, where the particular monomers are used to form polymers made by a seed emulsion polymerization method, can be crosslinked by incorporation of a polyfunctional monomer in an amount of 0.05% by weight or more to 5% by weight or less. The recitation in claim 21 is broader than the disclosed crosslinked primary polymer particles because it includes primary polymer particles comprising a crosslinked polyester resin.

(6) The entire recitation of claim 24 lacks antecedent basis in the specification.

(7) The entire recitation in claim 26 lacks antecedent basis in the specification. See page 44, lines 20-23, of the specification, which discloses that the coating amount of

particulate resin is "preferably 3 w/w% or more, more preferably 5 w/w% or more of primary polymer particles."

(8) In claims 45 and 46, the recitations "10% by volume or less" and "5% by volume or less" lacks antecedent basis in the specification. See page 42, lines 19-21, of the specification, which discloses that the portions of toner having particle sizes of 5  $\mu\text{m}$  or less and particle sizes of 15  $\mu\text{m}$  or less is "10% by weight or less" and "5% by weight or less" (emphasis added).

(9) In claim 47, the recitation "at least a substantial surface portion" lacks antecedent basis in the specification. See page 8, line 10, of the specification, which discloses "coating a substantial surface portion of said agglomerate."

6. The examiner notes that the instant specification at page 30, lines 5-8, defines the term "substantially free of wax" recited in the instant claims as indicating "that the level of wax is preferably less than 1 w/w%, more preferably less than 0.5 w/w%, most preferably less than 0.1 w/w%."

The term binder resin recited in instant claims 18, 19, and 33 is defined in the specification at page 41, lines 5-8, as meaning "the sum of resin constituting primary polymer particles and the resin constituting particulate resin, as described earlier."



The specification defines the term 50% circular degree recited in the instant claims at page 43, lines 4-10.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 2, 5, 6, 8, 9, and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2, 5, and 9 are indefinite in the phrase "primary polymer particles comprise a wax" (emphasis added) for lack of unambiguous antecedent basis. It is not clear whether "a wax" recited in instant claims 2, 5, and 9 refers to the wax recited in instant claim 1 or to a different wax.

Claims 6, 8, and 9 are indefinite in the phrase "particulate resin . . . comprises a wax" (emphasis added) for lack of unambiguous antecedent basis. It is not clear whether "a wax" recited in instant claims 6, 8, and 9 refers to the wax recited in instant claim 1 or to a different wax.

Claim 18 is indefinite in the phrase "particulate resin . . . comprises from 1 to 40 parts by weight of a wax therein

based on 100 parts by weight of binder resin in the toner"

(emphasis added) for lack of unambiguous antecedent basis. It is not clear whether "a wax" recited in instant claim 18 refers to the wax recited in instant claim 1 or to a different wax.

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 57-69 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

(1) Instant claim 57 and claims 58-68, which depend from claim 57, recite a binder resin "obtained by addition polymerization." Applicants assert that although the term "addition polymerization" does not appear *per se* in the instant specification, the term is "well-known from the types of

monomers and the polymerization described, such as emulsion polymerization, that resins prepared therein are by addition polymerization."

However, the originally filed specification does not provide an adequate written description of the binder resin recited in instant claim 57. The originally filed specification at page 41, lines 5-8, discloses that the term "binder resin is used herein to mean the sum of resin constituting primary polymer particles and the resin constituting particulate resin, as described earlier." The originally filed specification at page 7, lines 2-11, discloses toners comprising an agglomerate of particles comprising primary polymer particles and colorant particles, and a layer of a particulate resin coated on a substantial surface portion of said agglomerate of particles, wherein at least one of the primary particles and said particulate resin further comprises a wax. The specification at page 14, lines 20 ff, discloses primary polymeric particles obtained by seed emulsion polymerization of a monomer mixture using a particulate wax as a seed, wherein "[i]n order to effect seed polymerization, a monomer having a Bronsted acidic group . . . or a monomer having a Bronsted basic group . . . and a monomer having neither a Bronsted acidic group nor a Bronsted basic group . . . are successively added to cause polymerization

in the emulsion containing particulate wax." The specification at page 30, lines 3-4, discloses that the particulate resin can be obtained by an emulsion polymerization method. The term "binder obtained by addition polymerization" is broader than the binder resin disclosed in the originally specification, because it includes binder resins that are not obtained by an emulsion polymerization method, such as a Ziegler-Natta polymerization method, a suspension polymerization method, etc. There is no description of a generic "binder resin obtained by addition-polymerization" in the originally filed specification.

Moreover, the toner particles recited in instant claim 57 are broader than the disclosed toner particles comprising an agglomeration of primary polymer particles and colorant particles and a coating of particulate resin, because they include toner particles obtained by a melt-kneading process coated with a resin layer. Applicants' description of "primary polymer particles" and agglomerates having a layer of particulate resin, where the primary polymer particles and particulate resin are obtained by emulsion polymerization, does not suffice as a description of the general concept.

(2) Instant claims 68 and 69 recite that the binder resin comprises an "agglomerate of particles comprising at least primary polymer particles, and at least one layer of a

particulate resin coated on a substantial surface portion of said agglomerate of particles." Applicants assert that the binder resin is supported by the binder limitation of originally filed claim 1, and supported in the specification at page 41, lines 5-8.

However, the originally filed specification does not provide an adequate written description of the toner recited in instant claim 68. The originally filed specification at page 41, lines 5-8, discloses that the term "binder resin is used herein to mean the sum of resin constituting primary polymer particles and the resin constituting particulate resin, as described earlier" (emphasis added). The originally filed specification at page 7, lines 2-11, discloses and originally filed claim 1 recites toners comprising an agglomerate of particles comprising primary polymer particles and primary colorant particles, and a layer of a particulate resin coated on a substantial surface portion of said agglomerate of particles, wherein "at least one of the primary particles and said particulate resin further comprises a wax." The toner particles recited in instant claims 68 and 69 are broader than the disclosed toner particles comprising an agglomeration of primary polymer particles and colorant particles and a coating of particulate resin, because they include toner particles where

the wax is not present in either the primary polymer particles or the particulate resin. Applicants' description of "primary polymer particles" and agglomerates having a layer of particulate resin, where either comprises a wax, does not suffice as a description of the general concept.

11. Claims 68 and 69 are objected to because of the following informalities:

In claim 68, at line 9, the terminal period "." after the phrase "to a depth of 0.1  $\mu\text{m}$ " should be replaced with a semicolon.

Appropriate correction is required.

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

14. Claims 57-62 and 65 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 5,935,751 (Matsuoka'751).

Matsuoka'751 discloses a negatively chargeable toner comprising toner particles comprising a binder resin, a colorant, and paraffin wax. See example 7 at cols. 21 and 22, and Table 4 at col. 25, example 7. The binder resin comprises a styrene-n-butyl acrylate resin, which meets the binder resin obtained by "addition-polymerization" recited in instant claim 57. The paraffin wax has a melting point of 85°C, which is within the range of 30 to 100°C recited in instant claim 61. The wax is present in an amount of 5.0 wt% based on the weight of the binder resin. The amount of 5.0 wt% is within the range of "from 1 to 35 parts by weight to 100 parts by weight of binder resin" recited in instant claim 62. The toner has a volume-average particle size of 8.5  $\mu\text{m}$ , which is within the range of from 4 to 10  $\mu\text{m}$  recited in instant claim 59. The wax is dispersed in the binder resin having a dispersed particle size (or diameter) of 0.9  $\mu\text{m}$ . The particle size of 0.9  $\mu\text{m}$  is within the particle size ranges recited in instant claims 58 and 60. The wax particles are present on the surface of the toner particles in an amount of 5.8 wt% based on the total weight of the wax present in the toner. See Table 4. This amount of

5.8 wt% corresponds to an amount of 0.29 wt% of wax particles based on the total weight of the binder resin. The surface of the toner particles is defined as the surface layer ranging to a depth of 0.1  $\mu\text{m}$  from the outermost surface of the toner.

Col. 7, lines 2-6.

Matsuoka'751 does not explicitly disclose that the paraffin wax particles have a half-width of 0.06  $\mu\text{m}$  or less. Nor does Matsuoka'751 disclose that the wax particles are present in the toner in the ratio recited in instant claim 57. However, as discussed above, the amount of wax particles present in the toner particles within the surface of the toner particles to a depth of 0.1  $\mu\text{m}$  is 5.8 wt% based on the total weight of wax present in the toner particles, which corresponds to an amount of 0.29 wt% based on the total weight of the binder resin. The amount of wax present in the toner particles outside of the surface layer is about 4.7 wt% based on the weight of the binder resin.

In addition, the instant specification at page 49, lines 4-11, discloses that when the toner particles of the invention are made by agglomerating and fusing resin encapsulated wax particles, the wax particles in the resulting toner particles are "considered substantially to maintain the



particle diameter at a time when present" in the resin encapsulated wax particles. In other words, the wax particles dispersed in the toner particles have the same or substantially the same particle size as the wax particles present in the resin encapsulated wax particles before agglomeration and fusion. The instant specification also shows that toner particles made by agglomerating and fusing said resin encapsulated wax particles can comprise wax particles having a half-width number-average particle size of 0.06  $\mu\text{m}$  or less and dispersed in the toner particles as recited in instant claim 57. Instant specification, example 1. Such toner particles can be fixed over a temperature range of 130 to 220°C, have excellent antiblocking characteristics, and provide OHP transparencies having a transmission of 70%. Specification, table at page 132, example 1.

Matsuoka'571 discloses that the initial wax particles used to make its toner particles have an initial average particle size of 0.87  $\mu\text{m}$ . Table 4, example 7. As discussed above, the average wax dispersion particle size in Matsuoka'571's toner particles is 0.9  $\mu\text{m}$ . Matsuoka'517 discloses that its toner particles provide OHP transparencies having a transmission of 90%, have good anti-thermal blocking characteristics, and can be

fixed up to a temperature of 200°C without offset. See Table 4 at col. 27, example 7. In summary, Matsuoka'571's toner (1) meets the compositional limitations and physical limitations (toner and wax average particle sizes) recited in the instant claims, (2) has a small relative amount of wax particles in the surface layer of 0.1  $\mu\text{m}$  of the toner particles, (3) is made by a method where the particle size of the wax particles dispersed in the toner particles is substantially the same as the particle size of the initial wax particles used in making the toner particles, and (4) appears to have properties that are similar or substantially similar to those of toner particles comprising wax particles that meet the particle size distribution and location limitations recited in instant claim 57. Accordingly, it is reasonable to presume that Matsuoka'571's wax particles dispersed in the toner particles have the particle size distribution and location limitations recited in instant claim 57. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

15. Claim 63 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuoka'517 combined with unpatentable over Matsuoka combined with US 5,213,932 (Shimazaki).

Matsuoka'517 discloses a toner as described in paragraph 14 above, which is incorporated herein by reference.

Matsuoka does not exemplify a toner comprising a magenta colorant as recited in the instant claim. However, the reference discloses that its toner may comprise a magenta color. Col. 10, lines 66-67.

Shimazaki discloses a magenta colorant comprising a mixture of 40 to 60 parts by weight of rhodamine dye C.I. Solvent Red 49 and 60 to 40 parts by weight of C.I. Pigment Red 48, compound (2). Shimazaki, col. 2, line 55, to col. 3, line 11. Compound (2) meets the limitations of formula (1) recited in instant claim 63. Shimazaki discloses that toners comprising said magenta colorant have good weatherability properties, such as good light fastness and heat-resistance. Shimazaki also discloses that said toners provide clear magenta toner images and satisfactory hue. Col. 1, lines 51-55, and col. 4, lines 54-55.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Shimazaki, to use Shimazaki's magenta colorant as the colorant in the toner disclosed by Matsuoka'517, because that person would have had a reasonable expectation of successfully obtaining a magenta toner having the benefits disclosed by Shimazaki.

16. Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuoka'571 combined with Japanese Patent 59-165069 (JP'069), as evidenced by the USPTO English-language translation of JP'069.

Matsuoka'517 discloses a toner as described in paragraph 14 above, which is incorporated herein by reference.

Matsuoka'517 does not disclose the use of a magenta colorant as recited in the instant claims. However, the reference discloses that its toner may comprise a magenta color. Col. 10, lines 66-67.

JP'069 discloses a magenta colorant that meets the limitations of formula (2) recited in instant claim 64. Translation, page 4, line 5. JP'069 discloses that toners comprising said magenta colorant have the required characteristic for color electrophotography, e.g, high transparency, and provide stable images to heat and light. See JP'069, table at page 525; example 1; and translation, pages 5-6.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of JP'069, to use JP'069's magenta colorant as the colorant in the toner disclosed

by Matsuoka'517, because that person would have had a reasonable expectation of successfully obtaining a magenta toner having the benefits disclosed by JP'069.

17. Claim 66 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuoka'517 combined with US 5,547,802 (Kawase).

Matsuoka'517 discloses a toner as described in paragraph 14 above, which is incorporated herein by reference.

Matsuoka'517 does not disclose that his toner particles have a ratio of volume-average particle diameter to number-average diameter as recited in instant claim 66.

Kawase discloses that in order to obtain images with excellent dot reproduction and sharpness, it is preferable that the volume mean diameter ( $D_v$ ) of the toner particles be in the range of 3 to 9  $\mu\text{m}$ , and that the ratio ( $D_v/D_p$ ) of the volume mean particle diameter ( $D_v$ ) to the number-average particle ( $D_p$ ), be in the range of 1.00 to 1.15. Col. 18, lines 50-54. As discussed in paragraph 9 above, Matsuoka'571's toner particles have a volume-average particle size of 8.5  $\mu\text{m}$ , which is within the teachings of Kawase.

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It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Kawase, to adjust through routine experimentation the particle size of Matsuoka'571's toner particles such that the resultant toner particles have a ratio of  $D_v/D_p$  of from 1 to 1.15 that meets the limitation recited in instant claim 66, because that person would have had a reasonable expectation of successfully obtaining a toner that provides images with excellent dot reproduction and sharpness.

18. Claims 1-3, 10, 12, 14-18, 20-23, 25, 26, 31, 33, 35, 36, 39, 41, 43, 45-49, 51, 54, and 55 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,656,653 B2 (Mitsubishi).

Mitsubishi discloses a negatively chargeable toner that meets the compositional limitations recited in the instant claims. The toner comprises an agglomerate of particles comprising primary polymer particles and primary colorant particles, wherein the agglomerate of particles is first coated with a layer of particulate charge control agent and a layer of particulate resin which does not comprise a wax. See example 10 at cols. 34-36. The toner meets the layer structure recited in

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instant claims 1 and 3. Mitsuhashi teaches that the wax is present in a preferred amount of 1 to 35 parts by weight based on 100 parts by weight of the binder resin. Col. 14, lines 53-64. The amount of wax meets the amounts recited in instant claims 18 and 33. The ratio of the weight of the agglomerate to the weight of the particular resin is 99/11, which within the range of 1 to 100 recited in instant claim 26. See example 10, col. 35, lines 19-21.

The particulate resin comprises a crosslinked polymer obtained by emulsion polymerizing styrene, butyl acrylate, acrylic acid, and the crosslinking agent divinylbenzene in an amount of 0.39 wt% of the total amount of monomers. The particulate resin has an average particle size of 121 nm (0.121  $\mu\text{m}$ ). The particulate resin has a THF insoluble content of 20% by weight. See particulate resin dispersion 7 at cols. 30-31, and the table a col. 59, example 10. The particulate resin does not comprise a wax. Thus, the outer surface layer of particulate resin is free from wax and meets the limitation "substantially free from wax" as recited in instant claim 1. The particulate resin meets the compositional and physical (i.e., particle size) limitations recited in instant claims 15, 17, 22, and 23.

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The primary polymer particles comprise particulate wax. The particulate wax has a melting point of 70°C and a volume average particle size of 340 nm (0.340  $\mu\text{m}$ ). See col. 4, lines 51-55, and wax dispersion 7 and primary polymer particle dispersion 7 at cols. 29-30 and primary polymer particle dispersion 9 at col. 33. The wax meets the wax limitations recited in instant claims 12 and 31. The primary polymer particles comprise a crosslinked resin obtained by seed emulsion polymerizing styrene, butyl acrylate, acrylic acid, and the crosslinking agent hexanediol acrylate present in the amount of 0.74 wt%, in the presence of the particulate wax as the seed. The primary particles have a volume average particle size of 188 nm (0.188  $\mu\text{m}$ ), and comprise a THF insolubles content of 25 wt%. See col. 7, lines 8-12, and the table at col. 59, example 10. The primary polymer particles meet the compositional and physical limitations recited in instant claims 2, 10, 14, 16, 20, and 21.

The primary colorant particles comprise a magenta pigment represented by formula (A) disclosed at col. 23, lines 5-35, which is within the compositional limitation of formula (II) recited in instant claim 36. See particulate colorant dispersion 3 at cols. 22-23. Mitsuhashi teaches that the



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magenta pigment can equally be that represented by formula (I) disclosed at col. 8, which is within the compositional limitation of formula (I) recited in instant claim 35. Col. 8, line 31, to col. 9, line 19.

The toner in example 10 has an average volume particle size of 7.6  $\mu\text{m}$ , and a particle distribution where the toner comprises 1.6% by volume of toner particles having a particle size of 5  $\mu\text{m}$  or less and 2.4% by volume of toner particles having a particle size of 15  $\mu\text{m}$  or less. The toner has a ratio of volume average particle size to number average particle size of 1.15. See the table at col. 61, example 10. The toner meets the particle size and particle size distribution limitations recited in instant claims 25, 41, 45, and 46. The toner has a 50% circularity of 0.97, which is within the range of 0.95 to 1 recited in instant claim 43.

Mitsubishi teaches that the toner in example 10 is obtained by: (1) mixing the primary particles and primary colorant particles in an aqueous medium; (2) agglomerating the mixture to form an agglomerate of particles; (3) adding a particulate charge control agent to the solution comprising the agglomerate of particles to coat the agglomerate with a layer of particulate charge control agent; (4) adding the particulate resin to the

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solution comprising charge control agent coated agglomerate of particles to form a layer of particulate resin over the charge control agent coated agglomerate of particles; and (5) heating the resultant coated agglomerate of particles from step (4) at 95°C for 40 minutes. See example 10. The glass transition temperature ( $T_g$ ) of the resins in the primary polymer particles is 55 °C. Col. 30, line 49. The heating temperature is 38°C more than the  $T_g$  of the binder resin in the primary polymer particles. According to Mitsuhashi, the heating step (5) is an aging step where the agglomerate of particles is heated at a temperature of  $T_g$  to  $T_g + 80^\circ\text{C}$ , to cause fusion of the agglomerated particles. Col. 13, lines 10-19. The process steps disclosed by Mitsuhashi meet the process steps recited in instant claims 47-49, 51, 54, and 55.

19. Claim 24 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mitsuhashi.

Mitsuhashi discloses a toner as described in paragraph 18, which is incorporated herein by reference.

Mitsuhashi does not explicitly disclose that the agglomerate has a volume average particle size of 2 to 11  $\mu\text{m}$

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recited in instant claim 24. However, as discussed in paragraph 18, the resultant toner had a volume average particle size of 7.6  $\mu\text{m}$ , which is within the range recited in instant claim 24. The particulate charge control agent and particulate resin have a volume average particle size of 200 nm and 121 nm, respectively. See also the particulate charge control agent dispersion 1 at cols. 19-20. Because the particulate charge control agent and particle resin have volume average particle sizes on the order of 0.2  $\mu\text{m}$  and 0.12  $\mu\text{m}$ , and the resultant toner has a volume average particle size 7.6  $\mu\text{m}$ , it is reasonable to presume that the agglomerate has a volume average particle size with the range recited in instant claim 24. The burden is on applicants to prove otherwise. Fitzgerald, supra.

20. The indicated allowability of claims 27-30, 32, 34, 37, 38, 40, and 42 is withdrawn in view of the newly discovered reference(s) to Mitsuhashi. Rejections based on the newly cited reference(s) follow.

21. Claims 27-30, 32, 34, 37, 38, 40, 42, 57-69 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mitsuhashi.

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Mitsubishi discloses a negatively chargeable toner that meets the compositional and physical limitations recited in the instant claims. However, Mitsubishi does not disclose that its toner comprises wax particles having a half-width of 0.06  $\mu\text{m}$  or less, and that the wax particles are present in the toner in the ratio recited in instant claims 27, 57, and 68. The toner disclosed by Mitsubishi comprise an agglomerate of particles comprising primary polymer particles and primary colorant particles, wherein the agglomerate of particles is coated with a layer of particulate charge control agent and a particulate resin which does not comprise a wax. See example 1 at cols. 18-20. The toner in example 1 of Mitsubishi appears to be identical to the toner in example 1 of the instant specification. Both toners are made by identical processes using identical primary polymer particles, primary colorant particles, particulate resin, and particulate charge control agent. Both toners comprise primary polymer particles comprising a particulate wax having a melting point of 70°C and a volume average particle size of 340 nm. Both toners have an average volume particle size of 7.2  $\mu\text{m}$ , and a particle distribution where the toner comprises 3.5% by volume of toner particles having a particle size of 5  $\mu\text{m}$  or less and 0.5% by

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volume of toner particles having a particle size of 15  $\mu\text{m}$  or less. Both toners have a ratio of volume average particle size to number average particle size of 1.12. The toner meets the particle size and ratio limitations recited in the instant claims 29, 42, 59, and 60. Both toners also have a 50% circularity of 0.97, which is within the range of 0.95 to 1 recited in instant claims 27 and 67. In addition, the toner in example 1 of the instant specification, and the toner in example 1 of Mitsuhashi both exhibit the same fixing properties, charging properties, and blocking resistance. Mitsuhashi further teaches that the primary colorant particles may equally comprise a magenta pigment represented by formulas (I) and (II) disclosed at col. 8, line 31, to col. 9, line 19, which meet the compositional limitations of the colorant recited in instant claims 37, 38, 63, and 64.

The instant specification at page 49, lines 4-11, discloses that when the toner particles of the invention are made by agglomerating and fusing resin encapsulated wax particles, the wax particles in the resulting toner particles are "considered substantially to maintain the particle diameter at a time when present" in the resin encapsulated wax particles. In other words, the wax particles dispersed in the toner particles have

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the same or substantially the same particle size as the wax particles present in the resin encapsulated wax particles before agglomeration and fusion. The instant specification also shows that toner particles in example 1 made by agglomerating and fusing said resin encapsulated wax particles can comprise wax particles having a half-width number-average particle size of 0.06  $\mu\text{m}$  or less and are dispersed in the toner particles as recited in instant claims 27, 57, and 68. Instant specification, example 1. Thus, because the toner in example 1 of Mitsuhashi appears to be identical to the toner exemplified in example 1 of the instant specification, it is reasonable to presume that the toner disclosed by Mitsuhashi comprises wax particles dispersed in the toner particles having the particle size distribution and location limitations recited in instant claims 27, 57, and 68. The burden is on applicants to prove otherwise. Fitzgerald, supra.

22. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

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A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

23. Claims 1-3, 10, 12, 15, 16, 20-23, 25, 31, 33, 35, 36, 39, 41, 43, 45-49, 51, 54, and 55 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-119 of U.S. Patent No. 6,656,653 B2 (Mitsubishi).

Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter recited in Mitsubishi renders obvious the subject matter recited in instant claims.

Reference claim 17, which depends from reference claim 13, which in turn depends from reference claim 1, recites a toner comprising an agglomerate of particles comprising primary polymer particles and primary colorant particles, and at least one layer of a particulate resin coated on a substantial portion of the surface of said agglomerate, wherein the particulate resin is "substantially free from wax." Reference claim 37, which depends from reference claim 33, which in turn depends

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from reference claim 25, also recites a toner comprising an agglomerate of particles comprising primary polymer particles and primary colorant particles, and at least one layer of a particulate resin coated on a substantial portion of the surface of said agglomerate, wherein the particulate resin is "substantially free from wax." Reference claim 97, which depends from reference claim 93, which in turn depends from reference claim 83, also recites a toner comprising an agglomerate of particles comprising primary polymer particles and primary colorant particles, and at least one layer of a particulate resin coated on a substantial portion of the surface of said agglomerate, wherein the particulate resin is "substantially free from wax." Reference claims 1 and 25 both recite that the toner comprises a wax having a melting point of 30 to 100 °C; and that primary polymer particles comprise units obtained from acrylic acid or methacrylic acid, and comprise a THF insoluble content of from 15 to 70% by weight. Acrylic acid and methacrylic acid comprise carboxyl groups, which are Bronsted acids. Reference claim 25 further requires that the primary polymer particles comprise a polyfunctional monomer in an amount of from 0.005 to 5% by weight. Reference claim 83 recites that the toner comprises a wax having a melting point of



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30 to 100 °C; and that the toner has a ratio of volume average particle size to number average particle size, an average volume particle size, and a particle size distribution that meets the size ratio, particle size, and the particle size distribution recited in instant dependent claims 25, 41, and 45. The toners recited in reference claims 17, 37, and 97 meet the structural and compositional limitations recited in instant independent claim 1 and dependent claims 3, 16, 20, 21, 25, 31, 41, and 45.

Reference claims 14, 34, and 94, which depend from reference claims 13, 33, and 93, respectively, recite that the toner is a negatively charged toner as recited in instant dependent claim 39. Reference claims 15, 35, and 95, which depend from reference claims 13, 33, and 93, recite that the particulate resin has a THF insoluble content of 5 to 70% by weight, which meets the range of 5 to 70 % by weight recited in instant dependent claim 22. Reference claims 16 and 96, which depend from reference claim 17 and 93, respectively, recite that both the primary polymer particles and particulate resin comprise a polyfunctional monomer in the amount of 0.005 to 5% by weight, which meets the compositional limitations recited in instant dependent claims 21 and 23.

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Reference claims 5, 27, and 86, which depend from reference claims 1, 25, and 83, respectively, require that the wax be present in an amount of 1 to 40 parts by weight based on 100 parts by weight of a binder resin in the toner. The lower limit, 1 part by weight, is within the range of 1 to 35 parts by weight recited in instant dependent claim 33. The range of 1 to 40 parts by weight overlaps the range of 1 to 35 parts by weight recited in instant dependent claim 33.

Reference claims 12, 32, and 92, which depend from reference claims 11, 31, and 91, respectively, which in turn depend from reference claims 1, 25, and 83, respectively, recite that the primary polymer particles are obtained by an emulsion polymerization with a particulate wax as a seed, wherein the particulate wax has an average volume particle size of 0.01 to 3  $\mu\text{m}$ . The primary polymer particles meet the limitations recited in instant dependent claims 2, 10, and 12.

Reference claims 18 and 19, which depend from reference claim 1, reference claims 38 and 39, which depend from reference claim 25, and reference claims 98 and 99, which depend from reference claim 83, require that the primary colorant particles comprise a colorant of formulas (I) and (II), respectively, that

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meet the colorant compositional limitations recited in instant dependent claims 35 and 36.

Reference claim 20-23, which depend from reference claim 1, and reference claims 40-43, which depend from reference claim 25, require that the toner have a ratio of volume average particle size to number average particle size, a 50% circularity, volume average particle size, and particle size distributions, respectively, that meet the size ratio, 50% circularity, and volume average particle size, and particle size distributions recited in instant dependent claims 41, 43, 25, 45, and 46, respectively.

Reference claim 106, which depends from reference claim 105, which in turn depends from reference claim 104, recites a method of making a toner comprising the steps of:

- (1) agglomerating primary polymer particles and primary colorant particles to form an agglomerate of particles;
- (2) coating at least a substantial portion of the surface of the agglomerate of particles with a particulate resin which is substantially free of wax; and (3) an aging step performed at a temperature range of from the glass transition temperature of a binder resin constituting the agglomerate of particles ( $T_g$ ) to  $T_g + 80^\circ\text{C}$ . The primary polymer particles are obtained by a seed

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emulsion polymerization of a monomer mixture in the presence of a particulate wax having a melting point of 30 to 100°C. The steps recited in reference claim 106 meet the steps recited in instant claims 47 and 51. The temperature parameter of the aging step recited in reference claim 106 meets the temperature parameter of the aging step recited in instant claim 55.

Reference claim 107, which depends from reference claim 104, requires an aging step after the coating step. Reference claim 113, which depends from reference claim 109, which in turn depends from reference claim 104, further requires coating a substantial portion of the surface of the agglomeration with a particulate charge control agent between the agglomeration step and the aging step, and then coating the particulate resin after the aging step. The method steps recited in reference claim 113 meets the steps recited in instant dependent claim 48.

Reference claim 117, which depends from reference claim 109, which in turn depends from reference claim 104, requires that the particulate resin have a volume average particle size of 0.02 to 3  $\mu\text{m}$ , which meets the size range recited in instant dependent claims 15 and 49.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter recited in the

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claims of Mitsuhashi, to make and use a toner as recited in the instant claims and to make such a toner by a method as recited in the instant claims, because that person would have had a reasonable expectation of successfully obtaining a toner that is capable of developing an electrostatic latent image in an electrostatic imaging process.

24. Claim 18 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-119 of Mitsuhashi.

The reference claims in Mitsuhashi recite a toner as described in paragraph 23 above, which is incorporated herein by reference.

The references do not recite that the primary polymer particles comprise from 1 to 40 parts by weight of a wax therein based on 100 parts by weight of binder resin in the toner as recited in instant claim 19. However, as discussed in paragraph 15 above, references 5, 27, and 86 recite that the wax is present in an amount of 1 to 40 parts by weight based on 100 parts by weight of a binder resin in the toner. The range of 1 to 40 parts by weight meets the range recited in instant claim 18. As discussed in paragraph 15, the reference claims of

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Mitsubishi require that the particulate resin be substantially free from wax and that the polymer particles comprise the wax. Thus, it is reasonable to conclude that the polymer particles recited in the reference claims comprise the wax in the amount of 1 to 40 parts by weight based on 100 parts by weight of a binder resin in the toner as recited in instant claim 18. The burden is on applicants to prove otherwise. Fitzgerald, supra.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter recited in the claims of Mitsubishi, to use primary polymer particles comprising a wax as recited in instant claim 18 in the toner recited in Mitsubishi, because that person would have had a reasonable expectation of successfully obtaining a toner that is capable of developing an electrostatic latent image in an electrostatic imaging process.

25. Claims 4, 7, 11, and 13, 19, 50, 52, 53, and 56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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26. Claims 5, 6, 8, and 9 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The prior art of record does not teach a toner comprising the two layers of particulate resin as recited in instant claims 4-9, 11, 13, 19, 50, 52, 53, and 56.

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The central fax phone number is (703) 872-9306.

Any inquiry of papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLD

Jun. 01, 2004

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